DOCUMENT RESUME

ED 142 993 CS 003 639

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TITLE An Investigation of the Influence of Preschool Programs on Children's Reading Progress: A Review of Model Programs with Implications for the Future.
PUB DATE Aug 76
NOTE 24p.; Paper presented at the Annual Meeting of the International Reading Association World Congress on Reading (6th, Singapore, August 17-19, 1976)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Comparative Analysis; Early Childhood Education; Early Experience; Educational Research; Intervention; *Preschool Education; Preschool Evaluation; *Preschool Learning; *Program Evaluation; *Reading Ability; *Reading Development; Reading Readiness; *Reading Research; Reading Skills

ABSTRACT

This discussion examines the relative effectiveness of preschool intervention programs for improving reading skills and provides a review of some of the research concerning such interventions. Four types of preschools are defined: traditional (eclectic in approach), cognitive (stressing the development of learning abilities), informational (focusing on the teaching of specific skills), and prepared environment (based on Maria Montessori's principles). The comparison of research concerning these different types of programs is complicated by inconsistencies in purpose, design, definition of goals, selection of participants, treatment methods, and evaluation of results. Findings that may be empirically validated, however, suggest that children in Head Start or traditional preschools make small-to-moderate gains in I.Q. and show improved attitudes toward school and improved self-concepts. Although these gains are maintained in kindergarten and grade one, control-group children subsequently catch up to the experimental group. Impressive gains have been noted in those programs in which parents were involved; more structured programs seem to produce greater gains. Implications for teaching and research are discussed. (KS)

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AN INVESTIGATION OF THE INFLUENCE OF PRESCHOOL PROGRAMS ON CHILDREN'S READING PROGRESS: A REVIEW OF MODEL PROGRAMS WITH IMPLICATIONS FOR THE FUTURE.

Paper presented to

International Reading Association

Sixth World Congress on Reading

Singapore, August 17-19, 1976

BACKGROUND

Is it true that you can teach a three year old to read and change his/her entire life? This report takes a look at recent research in reading in early childhood.

For many years in the United States we never even bothered to ask

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that question. Well into the 1950's most Americans believed that the child under six years old neither could nor should learn to read, that his/her sensory and motor equipment were not sufficiently mature for an activity so complex as learning to read, and that his/her psychosocial development was more important than intellectual development (28).

These beliefs were challenged radically in the 1960's. First, some influential theorists emphasized the importance of the early years in the child's life and the plasticity of human intelligence (12) (47), that is, the belief that intelligence is not fixed, it can be improved by early favorable stimulation. Then, some respected researchers in reading presented convincing evidence that five (61), four (27), three (34), two (33),—even one year olds (25)—could learn to read. At the same time, our political leadership (49) wanted to do something with the young children of the poor to help prevent the inevitable cycle of poverty, illiteracy and despair in their lives. Finally, a growing number of married women in the labor force demanded better facilities for day care. The need was and still is great: half of all married women with children are working, and they need day care for their six million children under six years old. Another large group of mothers who are poor, but do not work, have two and a half million children who could also benefit from early, wholesome stimulation. In all, there are eight and a half million children who need day care. Day care is not a well established institution in the United States. Less than one out of ten children who need day care

actually gets it (13). The other nine must depend on siblings, grandparents, neighbors and friends.

Thus by 1970 Americans held a new set of beliefs—perhaps optimistic, simplistic and even naive. We believed that if we intervened early in the lives of poor children, we could offer them compensatory experiences and training which ultimately could catch them up with their more privileged classmates. We called this early intervention a "head start" (42), and we implemented our beliefs by establishing a network of early childhood research programs all around the United States. In 1971 eleven federal agencies supported 700 projects for young children for a total expenditure of more than $88 billion dollars. We had declared war on poverty (91).

DEFINITIONS

Before we examine whether or not the effort succeeded, we need a few explanations. First, the difference between day care and preschool.

Day care in the United States usually is a babysitting service for children from infancy to fourteen years old. This service is under the jurisdiction of the federal government which sets standards for facilities, adult-child ratio, space, health and safety, record keeping and parent contacts (40). Day care centers usually do not teach reading.

Preschools, unlike day care centers, try to do much more than simply babysit with young children. Preschools differ from each other

in several important ways, for example, in their theoretical orientation, in their degree of structure, and in their curriculum. We will examine four different preschool models (10).

FOUR PRESCHOOL MODELS

The first is the Traditional preschool. Its underlying theory is eclectic: it borrows from Froebel (35), Montessori (65) (66), and others. The main objective is to develop the child psychosocially, or as the teachers say, "to develop the whole child." There is a heavy emphasis on building a spirit of cooperation, self confidence, self expression, as well as encouraging large and small muscle activity and language fluency in the child. The structure tends to be low, that is, there is more spontaneous, informal teaching and learning than there is prestructured teaching and learning. The atmosphere is usually permissive, and the curriculum is more process oriented than content oriented. Typical activities include music, play, art, creative movement and drama, and enjoyment of children's literature. Usually, reading is not taught in the traditional preschool, although the children may learn to recite the alphabet nursery rhymes and poems. Examples of the traditional model can be found all over the United States. The early Head Start Centers were also examples.

A second kind of preschool is the Cognitive preschool. Here the theory is based largely on Piaget (77) (78), Hunt (47), and Bloom (12). The main objective is to develop the child's ability to learn, so from here on this model will be called the Learning to Learn

preschool. The Learning to Learn preschool also tries to develop the child's feelings of self worth and achievement motivation. Classroom structure is high; the teacher is the director. The curriculum seems to be more process oriented than content oriented. Paying attention, making fine discriminations, and building concepts are all stressed. Because they are so exemplary the Ameliorative Program at the University of Illinois (53) and the Perry Piagetian Program in Ypsilanti, Michigan (95), have been cited often in the literature.

In the Ameliorative Program the teacher directs small groups of children daily in three twenty minute lessons: one lesson on reading readiness and language arts, one on mathematics, and one on social studies and science. The children verbalize concepts while they manipulate concrete and semi-concrete objects related to each of the disciplines. Later, the children sort and classify these objects, again repeating the names of the objects; e.g., in play periods, they sing what they have learned about parts of their bodies (53).

Here are some activities in the Perry Piagetian Program:

Content categories

1. classification—the child learns to put together items that belong together, either by category, size, shape and color; for example, a knife and fork go together.
2. seriation—the child learns to compare objects and arrange them by quality, quantity and size; for example, "big, little, more, less, rough, smooth..."

3. spatial relations—the child learns to recognize his/her position in relation to other objects; for example, "in, out, over, under..."
4. temporal relations—the child learns that time periods have a beginning and an end, that time events can be put into a sequence (first—next—last), and that time periods can vary.

Levels of representation

1. index level—the child learns to recognize a whole by seeing a small part; for example, when he/she sees only the arm of a doll, the child can say "doll."
2. symbol level—the child can recognize a picture of a dog and can distinguish between the symbol and the thing by barking like a dog or by making a dog out of clay.
3. sign level—the child learns that words stand for things.

Levels of operation—the child proceeds from the motor level to the verbal level, as in the concept "jump" (2) (95).

A third kind of preschool is the Informational preschool. Here the theory is based on Pavlov (75) and Skinner's (87) stimulus response theory as well as the theories of Hunt (47) and Bloom (12). The main objective in this model is to teach specific information and skills, hence the term Informational. Classroom structure is very high; the teacher is the director. The curriculum is content oriented: the children learn rules of language and logical structures in both reading

and arithmetic. The Bereiter Englemann program, which began at the University of Illinois, is the best example of this model (8). At first the teacher teaches beginning language by showing objects and naming them: "This is a ball."

Next, she asks the children, "Is this a ball?"

Children answer, "Yes, this is a ball."

She continues with familiar objects, i.e., book, chalkboard, parts of the body.

Occasionally, she will vary by asking, "This is a what?" or "Is this a tree?"

After much repetition she proceeds from single to plural objects; next opposites, such as "big—little, soft—hard, fast—slow, hot—cold, smooth—rough, etc."

She even teaches the children how to say "I don't know." Soon, they learn how to make deductive statements, e.g., "If this is not long, then this is short."

Later they learn to say prepositions, and color words, and they learn to classify words in categories, e.g., toys, foods, clothing, tools.

Soon, they begin reading; once again in a strong, ritualistic prescribed manner, but with exciting, stimulating words: they learn to read their own names, soon they learn humorous rhyming; for example, "butterfly—sutterfly—mutterfly—futterfly—lutterfly—putterfly." Then they learn their alphabet letters and some easy words that fall

into families, such as, "cat—fat—rat—nat—pat—tat" (8) (3).

The fourth and last model of preschool is the Prepared Environment preschool. The theory comes from Montessori (65) (66); the main objective is to develop the child's ability to learn, in this case by teaching machines and self teaching materials, such as Montessori's Didactic Materials. The well-known sandpaper letters, geometic shapes, paired musical bells, color chips, form boards and stencils, counting beads, etc., are examples of these (65) (66). Classroom structure is high, but the teacher does not necessarily direct because the child interacts more with the materials than with the teacher. The curriculum here, as in the Learning to Learn preschool, seems to be more process oriented than content oriented, in order to develop skills of paying attention, noticing likenesses and differences, and motor coordination. The child learns to experience, touch, feel and remember numbers, letters and words.

A second example of the prepared environment preschool is Nimnicht's New Nursery School in Colorado originally intended for Mexican children from the southwestern part of the United States. The children learn to play with eight specifically designed toys that are self teaching and self rewarding (71).

In summary, then, there are four basic models of preschools: Traditional or eclectic, Learning to Learn, Informational and Prepared (responsive) Environment. All except the Traditional model teach reading deliberately. All except the Traditional Model are considered

exemplary because usually they are attached to a major university; because their curricula are based on psychological theory; because their teaching methods are highly structured, logical and consistent; because they require small groups of children taught by highly trained teachers (these programs are expensive); and most important of all, because they emphasize early, direct intervention for poor children. These were our battlegrounds for the war on poverty.

Several unrelated events led many Americans to lose their faith in early intervention programs. The first event was the publication of several influential, large-scale investigations which reported that the gains children made in these programs were lost by the time the children were six or seven years old (17) (85) (86). The second event was the economic slowdown in the United States in the early 1970's. As a result, early childhood intervention has slowed down, too. I believe that now is the time to take one final look at early intervention programs to see if there is indeed anything worth saving, and, of course, if any implications can be drawn from the data.

RESEARCH ON TEACHING READING

There are hundreds of published and unpublished reports available, among them over fifty research reports, a handful of summaries of reports and dozens of reports of reports. The research reports are difficult to compare because of differences in overall purpose, design, definitions of terms, selection of participants, treatment, evaluation, and even in style of reporting. Briefly, here are some of

the aspects of the research which are so difficult to compare:

1. Purpose

   Some experiments compared the effects of a structured program with effects of traditional programs (44) (88) (89) (9) (32) (51) (5), while others compared the effects of several different programs (52) (94) (23) (62) (63) (31).

2. Design

   Some projects used control groups (38) (21) (7) (94) (39) (58) (92) (46) (22) (79), but most did not. Some studies were longitudinal (56) (80) (38) (39) (19) (20) (94), but many were ex post facto.

3. Definitions

   Some reports say "preschool" when they really mean to say "Kindergarten." In the United States Kindergarten is the first year of compulsory school; the children are usually five years old. If we are truly serious about early intervention, five years of age may already be too late.

   The reports talk about a "full year" of preschool. In the United States a full year means a "full school year," or more precisely, the nine months period between September and June.

4. Selection of participants

   Overwhelmingly, these experiments were big projects including hundreds of children; only a few of the reports included

fewer than fifty children (51) (56) (48) (68) (22) (70) (76). Nearly all the children were poor; most, but not all were judged average or below average in intelligence; most, but not all lived in urban areas; a few lived in poor rural areas.

The ratio of black to white children was 2:1. Only a few projects involved Mexican or American Indian children (70) (16) (68) (79).

The teacher pupil ratios reported most often were 1:5 and 1:8. These ratios are smaller than the 1:15 ratio recommended for working with Head Start children (42). Practically all the children in these programs began when they were 3 or 4 years old. Only one study reported on 2 year olds (93).

The roles of the teachers, directors, volunteers and aides were not always made clear in the reports. Also, some of the preschool experiments dealt intensively with parents (96) (4) (60) (1) (43) (45) (57) (72) (84) (69) (70) (71); however, most worked directly with children.

5. Treatment

This was the least well explained part of the reports. The amount and duration of treatments varied widely from experiment to experiment. Some reports emphasized creative play and experiences for language development but never really

explained or gave examples of those experiences.

In some experiments the children attended all day, in others the children attended half day programs. The range of treatment duration was very wide: the treatments ranged from several years (most fell into the category one, two, or three years) to ten weeks (79) (54).

The majority of the reports came from Traditional (Head Start) and from Learning to Learn preschools. There were very few reports from Informational or Prepared Environment preschools.

6. Evaluation of results

Children were pre and post tested at the beginning and end of the treatment year or years, or after two, three or four years, and in a few rare cases, six or seven years later (58) (39) (80). At least ten different standardized tests of intelligence and reading achievement were used, so were several non standardized sets of observed classroom behaviors. The most frequently used tests were as follows: Stanford Binet, Peabody Picture Vocabulary, Wechsler, Primary Mental Abilities, Illinois Test of Psycholinguistics, Metropolitan Readiness; Metropolitan, Stanford and Iowa Achievement, and several other popular tests (Boehm Test of Basic Skills and the Bettye Caldwell Inventory).

IMPORTANT FINDINGS

The following are some of the most highly significant results:

Children in Head Start or Traditional Preschools made some small to moderate gains in I.Q. when compared with control group children at the end of one, two or three years (85) (86) (17) (97) (56) (46) (54) (48) (67) (50) (82) (58).

Children in Head Start with subsequent enrichment programs (Follow Through) showed improved self concepts and better attitudes toward school; that is, the children came willingly, often, and they volunteered more often and initiated their own activities (90) (81) (41) (59) (62) (63).

Children in the more highly structured preschools made more impressive gains in both I.Q. and reading achievement than did the children in the Traditional preschools. The Learning to Learn and the Informational preschool children showed the greatest gains, for example, 8-15 I.Q. points (73) (16) (10) (51) (52) (94) (38) (39) (68) (62) (63) (19) (20).

Children maintained these gains in Kindergarten and grade one, but subsequently, the control group children caught up to them. A few reports show continued gains in grades two, three and four (39) (19) (20). At least one report showed neither gains nor losses (46).

Children in experiments which also included parents showed impressive gains, i.e. I.Q. gains up to 23 points (69) (57). In programs where parents were taught how to talk to their children and

how to teach their children (4) (60) (55) (57) (72) (43) (84), parents and children both benefited. Whether the program was at home or at school did not seem to affect the results.

IMPLICATIONS

The implications of these findings are important for future research and teaching.

Research. There have been too many uncoordinated, unskillful and haphazard efforts in early intervention. The acquisition of a federal (state, local) grant carries with it a moral obligation to fulfill all requirements of that grant: those persons who apply for and receive grants must be diligent about hiring highly qualified personnel to teach, keep records, evaluate and report the results. These experiments in early childhood intervention have shown clearly that researchers in the future must be far more rigorous than they have been in the past in designing experiments, in controlling variables, in executing treatment and in reporting results. Otherwise, their data will be limited at best, useless at worst.

The researchers may have given up too quickly: more longitudinal studies are needed to assess the effects of these programs after ten, even fifteen years.

I.Q. and reading achievement are relatively easy to measure on tests, but these are not the only areas of children's gains. The research shows strong, positive gains in attitudes. Researchers might do well to improve their instruments and observation techniques in the

measurement of attitudes in young children.

Teaching. The research suggests that highly structured preschools are successful—at least in the short run—for disadvantaged children. The Traditional preschool may be too permissive for many children who might benefit from a tighter, more carefully organized classroom. The teaching programs of the Piagetian Cognitive preschool and the Bereiter Englemann technique emphasize language development in a highly consistent and logical style. For those teachers who demand spontaneity, whatever these programs may lack in spontaneity or creativity can be offset by various other activities scheduled throughout the preschool day.

The research suggests that teachers begin to realize fully the tremendous potential of very young children. These experiments show that some concepts originally learned by six year olds in first grade, then by five year olds in Kindergarten, can now be learned by three and four year olds in preschool. Consequently, as preschool becomes Kindergarten, Kindergarten becomes first grade, first grade becomes second grade, and so on, the present elementary curriculum may sift downward all through the grades. Teachers at all grade levels will need to adjust their curricula and expectations accordingly.

The research suggests that teacher training must be improved and updated. Teachers are needed who can be behaviorists and humanists in different situations. Teachers must be flexible and competent to move from learning level to level, for example,—in a recently

developing trend—as birth rates decline and certain Kindergartens and first grades are shut down, these teachers must be prepared to move wherever they are needed. Clearly, if certain Kindergartens are closed down, the school district would then have the space and teachers to establish preschools and day care programs for some of those eight and a half million young children who could benefit from such programs. Thus the challenge is presented to those who make school policy to begin to design school programs that begin at age three or four. The State of California Task Force on Early Childhood Education has already recommended education for all children beginning at age four (30), while certain cities all around the United States are planning programs from birth to age five (Atlanta, Detroit, St. Louis, Boston, Syracuse, Washington and Philadelphia).

Parents and community. The research suggests that the degree of home intervention is an important variable in designing compensatory programs for young children. This leads to a belief that preschool programs ought to involve parents, grandparents, siblings—indeed, the whole family. The involvement could be teaching or learning, playing, child watching, policy making, fund raising, evaluating, nursing;—these are only a few contributions that the family and community can make to do the best for all their children.

In conclusion, we may have lost the battle, but we have not lost the war.

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